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AUTHOR Smith, Duane R.; And Others
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ABSTRACT

Reported is a research project conducted to train teachers in methods of open education for future implementation in their classrooms. The format of the program allowed participants to experience an open classroom in action by actually living the experience. Prior to participation in the workshop, the participants were asked to read five books to acquire some background in open education. The 48-hour workshop was attended by over 150 teachers. Four research instruments were administered as a pretest situation and of these three were re-administered at the end of the workshop. Six months later all four instruments were mailed to each participatnt for completion and return. A 35 percent return was received. A description of one instrument, "Sketch Your Classroom," is presented. Data presented in this paper represent only those 46 participants who completed both the Attitude Inventory and "Sketch Your Classroom" instruments in June and November 1974. Thought evidence of positive attitudinal changes were noted, it was concluded that a one-week workshop cannot serve to achieve significant gains. (Author/EB)

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ELEMENTARY SCHOOL TEACHERS' ATTITUDES TOWARD LEARNING CENTERS IN OPEN CLASSROOMS

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by

Duane R. Smith
Roy W. Allison
David O. Ongiri
Donald K. Alexander
Kathryn T. Starkey
The Capitol Campus
The Pennsylvania State University
Middletown, Pa.

A Presentation at the 1975 National Convention
National Science Teachers Association
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ELEMENTARY SCHOOL TEACHERS' ATTITUDES
TOWARD LEARNING CENTERS IN OPEN CLASSROOMS

Introduction

"Open" education is currently a widely accepted educational innovation. High interest in it is manifested in many school districts. In view of this interest, The Capitol Campus of The Pennsylvania State University in Middletown, Pennsylvania instituted a summer workshop in an effort to train teachers properly in the methods of open education for future implementation in their classrooms.

The faculty of The Capitol Campus and practitioners in the public schools who work directly with "open" classrooms conducted large-group, small-group, and special-interest sessions; all of these were complemented by the participants' experiences in large blocks of time devoted to open-classroom laboratory work. There was a keynote speaker well-known in the field of open education for each of the two sessions. The topics for small group discussions included philosophy and definition of open education, setting up, creative expression, and evaluation. Numerous interest groups were organized, especially around topics solicited from the participants. The topics included learning centers for science, mathematics, reading, and language arts. Additional topics included expression in movements and how to administer an open classroom.

The format allowed participants to experience an open classroom in action by actually living the experience. Each participant, with the guidance of workshop instructors, set personal objectives which they contracted to complete by the end of a predetermined period. Prior to participation in the workshop, the participants were asked to read five books in order to acquire an historical as well as a theoretical background in open education. The participants were helped by the instructors of the workshop to combine the knowledge

attained from books and their practical experiences during the workshop.

The forty-eight hour workshop was conducted during a six-day period with eight hours of instruction each day. Participants earned three credits for the successful completion of their individual objectives. Two sessions of the workshop were conducted, one in late June and the other in early July. The first group was comprised of eighty-five (85) teachers and the second group of seventy (70) teachers. Participants were registered on a first come first served basis.

Four research instruments were administered to the one-hundred-fifty-five (155) teachers before the six-day workshop. Three of these instruments were re-administered at the end of the workshop. Six months after the completion of the workshop, all four instruments were mailed to each participant for completion and return. The return for this third administration was 35% of the total group.

Sketch Your Classroom Instrument

As one observes a classroom when the students and teacher are not present, one receives a nonverbal impression. The "Sketch Your Classroom" instrument is an attempt to formalize this nonverbal impression. Personal experiences seem to indicate to the researcher that a classroom so observed provides the observer with an accurate perception of the classroom teacher's current organizational pattern and some feeling for the system of control in use.

This instrument, a detailed sketch of the classroom, is substituted for an actual classroom visit. The sketch is drawn by the classroom teacher. (See Appendix B for a copy of the instrument.)

The instrument is not intended to be used for evaluation. It is a system of classification, based on the physical arrangement of the furnishings and materials shown on the sketch. It provides a reference point against which changes in classroom arrangement and/or organization may be identified.

The "Sketch Your Classroom" instrument is much like the initial step of Peggy Amidon's Nonverbal Interaction Analysis Method (1971). In her method, a trained observer records the nonverbal characteristics of the classroom prior to the formal observation and recording of the teacher's interaction with the class. Her system is much more elaborate and provides for data to be gathered regularly over an extended period of time. Both verbal and nonverbal interaction is recorded. The classroom sketch used in this research provides data for only one given point in time and is limited to nonverbal data.

The "Sketch Your Classroom" instrument is identified as a record of the teacher's current classroom arrangement as prepared by the teacher.

Application of the Instrument

Teachers scheduled to attend an open education workshop in the summer of 1974 were asked to sketch their classroom arrangement as it appeared in June 1974. Six months after the workshop, in November 1974, each was again asked to complete the "Sketch Your Classroom" instrument.

The sketches were then classified by the researcher into one of the following eight categories:

Category	Description
I	A formal classroom arrangement with students' desks and chairs in rows and the teacher's desk at the front of the room. No learning centers are indicated.
Ic	The same as Category I, except learning centers are indicated.
II	In this category, the students' desks and chairs are grouped and the groups are arranged in a regular or formal pattern of rows. No learning centers are indicated.
IIc	The same as Category II, except learning centers are indicated.
III	In this category, the students' desks and chairs are grouped into a less formal arrangement or there is an indication that the arrangement changes from time to time during the day. No learning centers are indicated.
IIIc	The same as Category III, except learning centers are indicated.
IV	In this category the classroom space is organized into learning areas. No seating arrangement is indicated. No learning centers are indicated.
IVc	The same as Category IV, except learning centers are indicated.

Presentation of the Data

This research presents data from only those participants who completed both the Attitude Inventory and "Sketch Your Classroom" instruments in June and November 1974. This was a total of forty-six (46) teachers.

Table I

Classification of Responses
to the "Sketch Your Classroom" Instrument

June Administration			November Administration		
Category	Frequency	Percent of total	Category	Frequency	Percent of total
I	3	7	I	4	9
Ic	5	11	Ic	1	2
II	14	30	II	8	17
IIc	15	33	IIc	25	54
III	2	4	III	1	2
IIIc	5	11	IIIc	3	7
IV	0	0	IV	0	0
IVc	2	4	IVc	4	9
Totals	46	100%	Totals	46	100%

Analysis of Data

Table II

No Learning Centers versus Learning Centers

June Administration				November Administration			
No Centers		Centers		No Centers		Centers	
Cat.	Freq.	Cat.	Freq.	Cat.	Freq.	Cat.	Freq.
I	3	Ic	5	I	4	Ic	1
II	14	IIc	15	II	8	IIc	25
III	2	IIIc	5	III	1	IIIc	3
IV	0	IVc	2	IV	0	IVc	4
Totals	19		27	Totals	13		33
Percent of total	41%		59%	Percent of total	28%		72%

Summary of Findings

The sketches containing learning centers in June was 59%. In November the number increased to 72%. This was an increase of 13%.

Formality of Classroom Arrangement

The formality of the classroom organization shown on the sketches drawn by teachers was analyzed in two ways. The first analysis is identified as Formal versus Informal. The Formal group contains all responses classified in Categories I, Ic, II, and IIc. The Informal group contains all other responses. This division was selected considering the descriptions of the categories. It will be remembered that both Categories I and II had students' desks and chairs, either singly or in groups, arranged in a formal pattern on the classroom sketch. Categories III and IV represented no such formal organization.

The second analysis compares More Formal versus Less Formal. The More Formal group contains all responses classified in Category I and Ic. The Less Formal group contains all other responses. This division is considered since Category I represents classrooms where students' desks and chairs are arranged in rows with the teacher's desk at the front of the room or, a Formal Arrangement. Categories II, III, and IV, therefore, represent Less Formal arrangements. The designations More and Less Formal were assigned to permit differentation of results from the earlier Formal and Informal groups.

Table III

Analysis of "Sketch Your Classroom" Data
Formal Versus Informal

June Administration	Formal (I-IIc)	Informal (III-IVc)	November Administration	Formal (I-IIc)	Informal (III-IVc)
Totals	37	9	Totals	38	8
Percent of total	80%	20%	Percent of total	83%	17%

Summary of Findings

This analysis shows that 20% of the classroom sketches were judged Informal in June. In November, only 17% were judged Informal. This was a decrease of 3%.

Table IV

More Formal Versus Less Formal Analysis

June Administration	More Formal (I,Ic)	Less Formal (II---IVc)	November Administration	More Formal (I,Ic)	Less Formal (II---IVc)
Totals	8	38	Totals	5	41
Percent of total	17%	83%	Percent of total	11%	89%

Summary of Findings

This analysis shows that 83% of the classrooms were

judged Less Formal in June. In November, 89% were judged Less Formal. This was an increase of 6%.

Summary and Conclusion of "Sketch Your Classroom"

The data summarized from the "Sketch Your Classroom" instrument shows that from June to November 13% more classroom sketches included learning centers. Exposure to a wide variety of learning centers and assistance in the preparation of at least one required learning center may have contributed to this positive growth.

The analysis of the degree of formality expressed by the classroom sketch varied slightly according to the analysis pattern chosen.

When the analysis Formal-Informal was applied, the data showed 20% of the June classroom sketches were classified Informal. In November, only 17% were judged Informal. This was a shift of 3% toward the Formal organizational categories. One explanation for this shift could be that teachers recognize that the utilization of learning centers in a classroom require equal or greater organization than for a classroom without centers.

When the analysis More Formal-Less Formal was applied, the data showed 83% of the June classrooms were judged Less Formal. In November, 89% of the classrooms were judged Less Formal. This was a shift of 6% in the direction of Less Formal organizational categories. A possible explanation of this result may be that in order to accomodate learning centers in their classrooms, teachers must modify, to some extent, the formal arrangement of their classrooms.

Further research is required if the distinctions are to be more finely described. For the present, the conclusions

drawn from this section of the research are as follows: First, it does appear that the workshop in open education may have contributed to the increased use of learning centers. Second, it appears that the teachers reporting on this instrument recognize that learning centers require equal or greater organization to a regular classroom but that some modification of a formal classroom arrangement may be required to accomodate the learning centers approach.

Likert Type Attitude Scale

The researchers were interested in also determining the degree to which the workshop participants' attitudes would change as a result of the workshop. F tests and t tests were more familiar statistical tools which could indicate the degree to which any change in attitude might be significant. A Likert type attitude scale of fifty-two (52) items was developed.

The researchers have established a reliability of .826 or higher on several administrations using both the Alpha Index of Reliability and Guttman's Lambda-3 Index of Reliability with an N of 83, a mean of 187.084, and a standard deviation of 14.132. The researchers claim both content and construct validity for the instrument. The items were prepared by reviewing the textbooks on open education listed in the appendix and other current articles in periodicals for statements concerning the open classroom. These statements were written to be both positively and negatively oriented and the order of the items was randomly selected.

The t statistic was used as a rough approximation of the discrimination power of each item. The t s for the items used range from a low of 3.687 to a high of 10.084. The adjusted item-total correlation was done by a method developed by Henrysson (Psychometrika, 1963, 28, 211-218). The range

of the item-total correlation is from a low of .359 to a high of .614. The average item mean for the total test is 3.727 which is slightly on the positive side of the five point scale where the most negative answers would receive a score of one (1), a neutral score would be a three (3), and the most positive answer would receive a score of five (5). The adjusted average item-total was .413.

The Likert type instrument, authored by Roy W. Allison, David O. Ongiri, and Donald K. Alexander, has been called the AOA Attitude Scale. The AOA Attitude Scale was administered to participants in two open education workshops held at The Capitol Campus of The Pennsylvania State University in Middletown, Pennsylvania in the summer of 1974. The scale was administered in June (pre-workshop), in July (post-workshop), and in November 1974 (post-post-workshop). The results of these administrations are presented in Table V which follows.

Table V

Comparison of Means and Standard Deviations for each group and each administration of the AOA Attitude Scale

	Group I			Group II		
	June	July	Nov.	June	July	Nov.
Mean	187.084	206.512	193.387	180.525	200.597	189.840
S.D.	14.132	14.161	16.642	17.828	16.613	17.713
N	83	80	31	61	67	15

The small number of returns of the November 1974 mailing was disappointing to the researchers. This number represented approximately 36% of the original group. The researchers further had to reduce the number of usable

information by discarding the data in which the participant had not completed all three administrations of the AOA Attitude Scale and the "Sketch Your Classroom" instrument. The usable data was reduced to thirty (30) participants in Group I and sixteen (16) participants in Group II. This reduced the N for Group II below the level acceptable to the researchers.

An F test followed by a t test of the data from Group I and Group II indicated that both groups originated from the same population or similar populations. The researchers determined that the participants from Group I and Group II having complete data could be treated as a single group. Table VI has the information regarding this total data.

Table VI

Comparison
of Means, Standard Deviation, and Sum of Squares
for the Total Group
on the Pre-Test, Post-Test, and Post-Post-Test
on the "AOA Attitude Scale"

	Pre-Test	Post-Test	Post-Post Test	Pre-Test Post-Test Difference	Pre-Test Post-Post Test Difference
N	46	46	46	46	46
Mean	185.34	204.65	191.93	19.30	6.58
S.D.	14.96	14.38	17.27	13.39	13.73
$\sum X$	8526	9414	8829	888	303
$\sum X^2$	1590350	1935910	1708021	25218	10489
$\sum x^2$	10074.44	9314.44	13428.81	8075.74	8493.16

Test of Hypotheses

1. There will be no significant change in the attitudes of the workshop participants toward open classrooms as measured by the AOA Attitude Scale administered pre-workshop and post-workshop.

2. There will be no significant change in the attitudes of the workshop participants toward open classrooms as measured by the AOA Attitude Scale administered pre-workshop and post-post-workshop.

The researchers calculate the test of significant differences between the pre-test and post-test and between the pre-test and post-post-test. The test of significance between the pre-test and post-test resulted in a t of 9.772 which is significant at the 1% level of significance. The test of significance between the pre-test and post-post-test resulted in a t of 3.243 which is significant at the 1% level of significance. Since the t tests were both significant at the 1% level, we must reject the null hypotheses stated earlier in this section and state:

1. There was a significant change in the attitudes of the workshop participants toward open classrooms as measured by the AOA Attitude Scale administered pre-workshop and post-workshop.

2. There was a significant change in the attitudes of the workshop participants toward open classrooms as measured by the AOA Attitude Scale administered pre-workshop and post-post-workshop.

The changes noted in statements 1 and 2 above were in the direction of a more positive attitude toward the open classroom. The change in the mean attitude scores of the participants between pre-workshop and post-workshop was from 185.34 to 204.65. The change in the mean attitude scores of the participants between pre-workshop and post-post-workshop was from 185.34 to 191.93. However, the change which occurred

between the post-workshop administration and the post-post-workshop administration of the AOA Attitude Scale was in a negative direction from a score of 204.65 to 191.93. This negative change was also at the 1% level of significance.

Attitudes or expressed attitudes and opinions can be changed in a positive direction if the proper motivation is provided. However, it is necessary to continue providing a high degree of motivation in order to maintain the attitude level achieved. If the high level of motivation, as provided by our workshop or a similar experience, is not maintained, the participants' gained attitudes will diminish as we have noted.

The participants of The Capitol Campus Open Education Workshop returned to their schools in different school districts. In many instances only one teacher from a building attended the workshop. The loss of attitude score was greater for these individuals than for the teachers in buildings where several teachers had attended the workshops. Perhaps the support of fellow workshop participants is sufficient motivation to help one maintain the higher positive attitude score gained during the workshop. It would be an interesting experiment to test this by having a workshop in which all of the teachers of one building would be in attendance.

The "Sketch Your Classroom" instrument identified the workshop participants who moved toward an open classroom or included more centers in their classrooms. This happened more frequently with the participants who retained a higher gained attitude score. Those participants whose attitude scores returned to the pre-workshop level or below were also the participants who indicated no change in the classroom arrangement.

Changes in attitude are possible. Changes in classroom arrangement are possible. A one-week workshop alone

cannot serve to achieve these goals. Some means of follow-up is required to help maintain any gains achieved.

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AOA OPEN-CLASSROOM ATTITUDE QUESTIONNAIRE

PLEASE RESPOND TO THE FOLLOWING ITEMS BY CIRCLING THE APPROPRIATE SYMBOL AS FOLLOWS:

SA = STRONGLY AGREE

A = AGREE

U = UNDECIDED

D = DISAGREE

SD = STRONGLY DISAGREE

1.	Teachers must provide motivation if children are to get interested in learning.	SA	A	U	D	SD
2.	No one knows what children will need to know as adults.	SA	A	U	D	SD
3.	If a student is doing something he is interested in, he is not likely to get into trouble.	SA	A	U	D	SD
4.	Every child should have a desk and a chair to do his school work.	SA	A	U	D	SD
5.	Discussion with peers is one of the best ways to learn.	SA	A	U	D	SD
6.	It is an acceptable practice to have students grade their own papers.	SA	A	U	D	SD
7.	Materials alone can provide sufficient motivation for learning.	SA	A	U	D	SD
8.	Children with less ability should be allowed to work at their own pace in school without extra assignments.	SA	A	U	D	SD
9.	A middle-grade teacher should expect that a lower-grade teacher will have prepared the children for middle-grade-level work.	SA	A	U	D	SD
10.	A child's innate curiosity can keep him busy at productive activities in school.	SA	A	U	D	SD
11.	The principal should assign the content to be taught.	SA	A	U	D	SD
12.	Teachers should grade students' papers to see that they are graded correctly.	SA	A	U	D	SD
13.	Children pay little attention to distractions around them when they are busy.	SA	A	U	D	SD
14.	If a student chooses what he wants to work on, he will keep busy and learn more.	SA	A	U	D	SD

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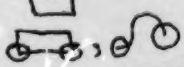
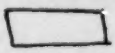
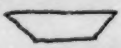
15.	Students should be permitted to move about freely in the classroom.	SA	A	U	D	SD
16.	The practice of reading under tables or in other hiding places should be discouraged because it is harmful to children's posture and eyesight.	SA	A	U	D	SD
17.	Teachers should follow the content provided in textbooks.	SA	A	U	D	SD
18.	Children are naturally self-motivated to learn.	SA	A	U	D	SD
19.	The desks could be removed from a classroom without a great loss in learning.	SA	A	U	D	SD
20.	Children should be taught as their teachers were taught.	SA	A	U	D	SD
21.	A student should remain in one place in the classroom until given permission to move.	SA	A	U	D	SD
22.	School boards should decide upon the content of the curriculum.	SA	A	U	D	SD
23.	If children are to develop into responsible adults, they should learn to keep their classroom neat and orderly.	SA	A	U	D	SD
24.	A child has the right to refuse to do an assignment his teacher gives him.	SA	A	U	D	SD
25.	A classroom which appears messy and disarrayed may provide the best possible learning situation.	SA	A	U	D	SD
26.	Children are easily distracted by things going on around them.	SA	A	U	D	SD
27.	Listening to the teacher is one of the most important skills for a child to develop.	SA	A	U	D	SD
28.	Only the best and experienced teachers should try to individualize their pupils' studies.	SA	A	U	D	SD
29.	Students will learn best if their group works together with the same book	SA	A	U	D	SD
30.	It would be good for young children to be taught to operate a film-strip projector.	SA	A	U	D	SD
31.	The parents should participate in the selection of curriculum content.	SA	A	U	D	SD
32.	Children should not be taught to read until they are ready, whatever their grade level.	SA	A	U	D	SD
33.	Children are able to learn in an atmosphere of activity and noise.	SA	A	U	D	SD
34.	A good way for children to learn concepts is by reading about them.	SA	A	U	D	SD

35.	A visitor should knock at the door before entering an occupied classroom.	SA	A	U	D	SD
36.	Manipulating concrete materials is one of the best ways to learn.	SA	A	U	D	SD
37.	Normal children will learn to read in the first grade if taught properly.	SA	A	U	D	SD
38.	Learning is primarily an individual activity.	SA	A	U	D	SD
39.	Students will learn to read best if they select the books they read.	SA	A	U	D	SD
40.	An old refrigerator box makes a good place for a child to do his reading lesson.	SA	A	U	D	SD
41.	If students don't have enough assigned work they are likely to get into trouble.	SA	A	U	D	SD
42.	Children learn best in a quiet atmosphere.	SA	A	U	D	SD
43.	Teachers who favor informal teaching methods are likely to be too permissive.	SA	A	U	D	SD
44.	The best way to keep good discipline in a classroom is to give the children plenty of work to do.	SA	A	U	D	SD
45.	A primary-grade teacher should be able to expect that a child who is below grade level will be taught at his own level in the higher grades.	SA	A	U	D	SD
46.	Since teachers are more mature they know better than a child what should be learned.	SA	A	U	D	SD
47.	Children should be taught to check out their own books from the school library in the absence of the librarian.	SA	A	U	D	SD
48.	Children should be able to go to the school library at any time to study.	SA	A	U	D	SD
49.	Students who work slowly in school should be given more homework to keep them up with the faster learners.	SA	A	U	D	SD
50.	Each child's program of studies in school has to be designed individually for him.	SA	A	U	D	SD
51.	The ideal classroom would have a number of tables and chairs of different sizes and shapes.	SA	A	U	D	SD
52.	Most teachers place too many restrictions on children's activities in the classroom.	SA	A	U	D	SD

SKETCH YOUR CLASSROOM

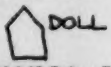
Please sketch the arrangement of your classroom in the space below--just as it is at the present time.

Here is a set of symbols and a bit of explanation so that we will understand the diagram and be able to get a feeling for your room.

Student desk
Teacher desk
Chair C
Shelves
Easel
Puppet stage
Wheeled toys 
Table  or 

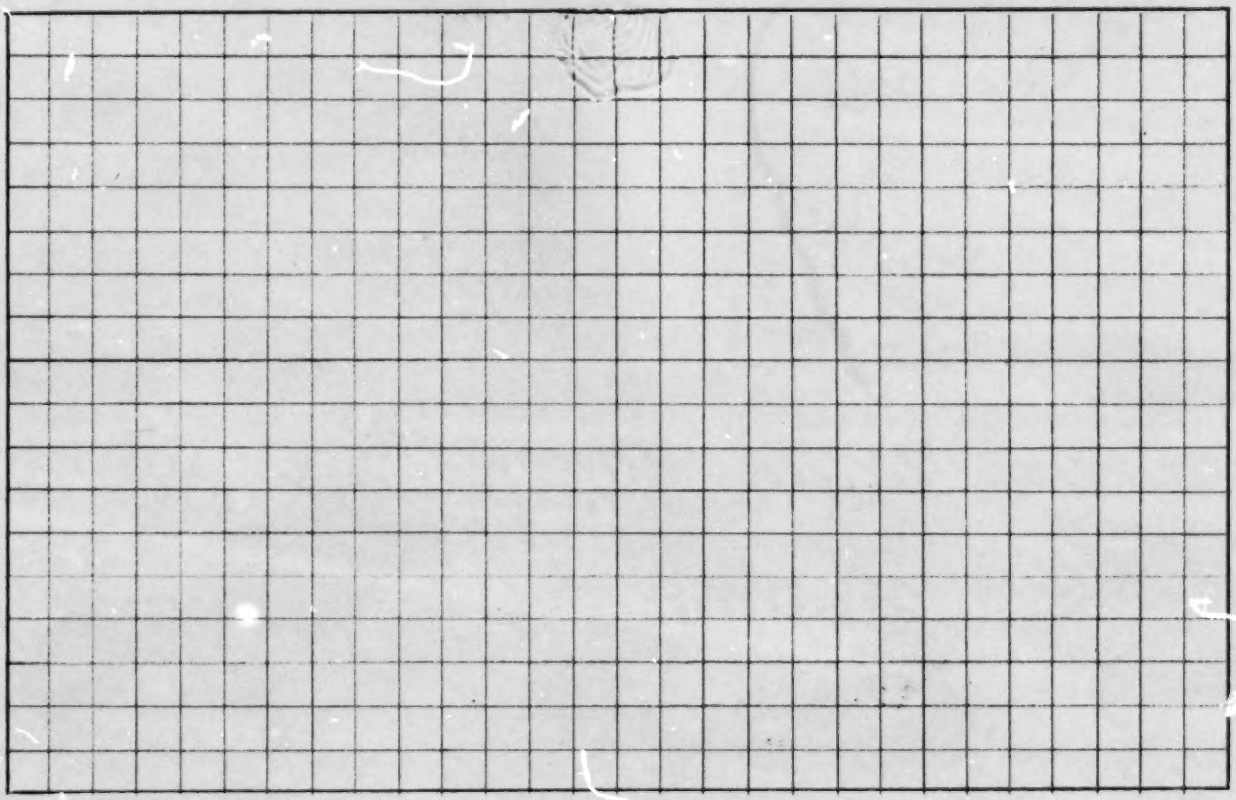
Box/or/Carton Lg (Lg, Large; Sml, Small)
Mark on the appropriate classroom wall:
Windows/light control x W-pull drapes x
Chalk board & content x CB-News-Assignments x
Bulletin board & display x BB-Spring-Math x
Doors/direction of swing
Learning center/topic

or or or

Special items may be identified by writing a word or abbreviation on or near the sketch. (i.e. 

, for Doll house; etc.)

You may include on the reverse side of this sheet any comments you feel would help us get a more accurate picture of your classroom.



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